

**What Is Claimed Is:**

✓ 1. A method of inducing a reduced immune response to donor tissue in a transplant recipient, comprising treating the recipient with at least one member selected from the group consisting of fibroblasts and a supernatant from a fibroblast culture in an amount effective to  
5 reduce an immune response in the recipient to the transplanted donor tissue.

2. The method of claim 1 wherein said at least one member is fibroblasts.

3. The method of claim 2 wherein the fibroblasts are autologous to the recipient.

10 4. The method of claim 2 wherein the fibroblasts are allogeneic to the recipient.

15 5. The method of claim 4, wherein the fibroblasts are obtained from the donor of the transplant.

6. The method of claim 2 wherein the fibroblasts are allogeneic to both the donor of the transplant and the recipient.

20 7. The method of claim 2, wherein the fibroblasts are administered to the recipient prior to administration of the transplant.

8. The method of claim 2, wherein the fibroblasts are administered concurrently with administration of the transplant.

25 9. The method of claim 8, wherein the fibroblasts are administered as a part of the transplant.

10. The method of claim 2 wherein the fibroblasts are administered after transplant.

30 11. The method of claim 2 wherein the fibroblasts are administered to the transplant recipient to treat rejection of the transplant by the recipient.

12. The method of claim 2, wherein the fibroblasts are human.

13. The method of claim 1, further comprising administering to the recipient immunosuppressive agents.

5 14. The method of claim 1 wherein the donor tissue is a solid organ.

15. The method of claim 14 wherein the solid organ is selected from heart, kidney, lung or liver.

✓ 10 16. A method of reducing an immune response against recipient tissue by donor tissue, comprising contacting the donor tissue with at least one member selected from the group consisting of fibroblasts and a supernatant from a fibroblast culture in an amount effective to reduce an immune response by the donor tissue against the recipient.

15 17. The method of claim 16 wherein said at least one member is fibroblasts.

18. The method of claim 17, wherein the fibroblasts are autologous to the recipient.

19. The method of claim 17, wherein the fibroblasts are autologous to the donor.

20 20. The method of claim 17, wherein the fibroblasts are allogeneic both to the donor and to the recipient of the donor tissue.

25 21. The method of claim 17, wherein the donor tissue and the fibroblasts are contacted *ex vivo* prior to transplantation of the donor tissue.

22. The method of claim 21, wherein the donor tissue is exposed to recipient tissue prior to being contacted with the fibroblasts.

30 23. The method of claim 18 wherein the fibroblasts are obtained from the recipient.

24. The method of claim 16 wherein the donor tissue is bone marrow.

25. The method of claim 16 wherein the donor tissue is peripheral blood.

26. The method of claim 16, further comprising administering to the recipient immunosuppressive agents.

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✓ 27. A method of treating a transplant recipient for graft versus host disease, comprising treating the recipient of a transplant with at least one member selected from the group consisting of fibroblasts and a supernatant from a fibroblast culture in an amount effective to reduce an immune response against the recipient by the transplanted donor tissue.

10 28. The method of claim 27 wherein said at least one member is fibroblasts.

29. The method of claim 28, wherein the fibroblasts are autologous to the recipient.

15 30. The method of claim 28, wherein the fibroblasts are autologous to the donor.

31. The method of claim 28, wherein the fibroblasts are allogeneic to both the donor and recipient.

20 32. The method of claim 27, further comprising administering to the recipient immunosuppressive agents.

✓ 25 33. A composition for treating an adverse immune response, comprising human fibroblasts in an amount effective to inhibit or reduce an adverse immune response to donor tissue in a transplant recipient, and a pharmaceutical carrier.